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| 10/662,443 | 09/16/2003 | Tomohiro Yamaguchi | 018656-678 | 9825 |

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| EXAMINER | |
|---|---|
| VO, QUANG N | |

| ART UNIT | PAPER NUMBER |
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| 2625 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/662,443 | YAMAGUCHI ET AL. | |
| | Examiner | Art Unit | |
| | QUANG N. VO | 2625 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

With regard to claim 1, applicant argues that Ohuchi does not disclose or suggest that the number of extreme points of the small regions C1 to Ci of a block B are used to determine whether that block belongs in the dot region; and a halftone-dot region determination unit for determining whether or not a large block is a halftone-dot region based on the number of isolated points calculated by the large block isolated point calculation unit and the number of isolated points calculated by the small block isolated point calculation unit, as recited in claims 1.

In response: Ohuchi discloses the number of extreme points of the small regions C1 to Ci of a block B (e.g., the dot region detecting part 13 divides the input image into blocks B and subdivides each block B into a plurality of small region Ci; the number of extreme points is obtained for each of the small regions, column 18, lines 15-21) are used to determine whether that block belongs in the dot region (e.g., the region discrimination signal output part 14 outputs a discrimination signal which indicates whether each picture element belongs to the dot region or the line region based on the result of the detection made in the dot region detecting part 13, column 18, lines 32-36); a halftone-dot region determination unit (e.g., the region discrimination signal output part 14, figure 3) for determining whether or not a large block is a halftone-dot region (e.g., outputs a discrimination signal which indicates whether each picture element belongs to the dot region, column 18, lines 32-36) based on the number of isolated points calculated by the large block isolated point calculation unit (e.g., the dot region

detecting part 13 discriminates whether or not a predetermined picture element within an object block Bo shown in figure 6 belongs to the dot region…, column 18, lines 25-31) and the number of isolated points calculated by the small block isolated point calculation unit, as recited in claims 1 (e.g., subdivides each block B into a plurality of small regions C(i), and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C(i) of each block B, column 18, lines 17-21).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 6-8, 11-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohuchi (US 5,025,481).

With regard to claim 1, Ohuchi discloses an image processing apparatus (e.g., a dot region discriminating apparatus, column 5, lines 32-36) that handles image data, comprising: a dividing unit for dividing image data into large blocks (e.g., dividing the input image into blocks B each comprising N x N pixels, column 18, lines 15-17) of a prescribed size and further subdividing the large blocks into multiple smaller blocks (e.g., each block B is subdivided into the small regions C(i), figure 5, column 18, lines

17-18); a large block isolated point calculation unit (e.g., the dot region detecting part 13 divides the input image into blocks B (large blocks), column 18, lines 15-17) for calculating the number of isolated points contained in each large block established by dividing unit (e.g., a number Po of extreme points of an object block Bo and numbers P1 through P8 of extreme points of surrounding blocks B, column 18, lines 25-32); a small block isolated point calculation unit which calculate the number of isolated points contained in each small block established by the dividing unit (e.g., the number of extreme points is obtained for each of the small regions, column 18, lines 15-21); and a halftone-dot region determination unit (e.g., the region discrimination signal output part 14, figure 3) for determining whether or not a large block is a halftone-dot region (e.g., outputs a discrimination signal which indicates whether each picture element belongs to the dot region, column 18, lines 32-36) based on the number of isolated points calculated by large block isolated point calculation unit (e.g., the dot region detecting part 13 discriminates whether or not a predetermined picture element within an object block Bo shown in figure 6 belongs to the dot region…, column 18, lines 25-31) and the number of the isolated points calculated by small block isolated point calculation unit (e.g., subdivides each block B into a plurality of small regions C(i), and counts the number of extreme points indicating the peaks and the number of extreme points indicating the valleys for each small region C(i) of each block B, column 18, lines 17-21).

With regard to claim 2, Ohuchi discloses wherein halftone-dot region determination unit is operable determine that a large block is a halftone-dot region if the

number of isolated points in the large block equals or exceeds a first prescribed value (column 19, lines 35-44) and the number of isolated points in each small block contained in the large block equals or exceeds a second prescribed value (e.g., Q > Qth, column 20, lines 39-52).

With regard to claim 3, Ohuchi discloses wherein the second prescribed value is smaller than the first prescribed value (e.g., the larger numbers as the number of extreme points of block B, column 19, lines 8-21).

With regard to claim 6, Ohuchi discloses an image processing apparatus (e.g., a dot region discriminating apparatus, column 5, lines 32-36) that handles image data, comprising: a dividing unit for dividing image data into multiple small blocks (e.g., each block B is subdivided into the small regions, column 18, lines 17-18); a small block isolated point calculation unit for calculating the number of isolated points contained in each small block established by the dividing unit (e.g., the number q of extreme points is obtained for each of the small regions, column 18, lines 15-21); a large block isolated point calculation unit for calculating the number of isolated points contained in a large block of the image data, the large block being composed of multiple smaller blocks based on the small block isolated point totals calculated by the small block isolated point calculation unit (e.g., counting number of extreme points, column 6, lines 13-16); and a halftone-dot region determination unit for determining whether or not the large block is a halftone-dot region based on the number of isolated points calculated by the large block isolated point calculation unit and the number of isolated points calculated

by the small block isolated point calculation unit (e.g., the region discrimination signal output part, column 18, lines 32-36).

With regard to claim 7, the subject matter is similar to claim 2. Therefore the rejection on claim 7 is set forth as above claim 2.

With regard to claim 8, the subject matter is similar to claim 3. Therefore the rejection on claim 8 is set forth as above claim 3.

With regard to claim 21, Ohuchi discloses wherein the number of isolated points contained in the large block equals the number of isolated points that small block isolated point calculation unit calculates for each small block composing the large block (column 18, lines 15-21).

With regard to claim 22, Ohuchi discloses wherein large block isolated point calculation unit is operable to calculate the number of isolated points contained in the large block by calculating the number of isolated points contained in a plurality of contiguous small blocks within a predetermined area of the image data (column 18, lines 15-31).

Referring to claim 11:

Claim 11 is the method claim corresponding to operation of the device in claim 1 with method steps corresponding directly to the function of device elements in claim 1. Therefore claim 11 is rejected as set forth above for claim 1.

Referring to claim 12:

Claim 12 is the method claim corresponding to operation of the device in claim 2 with method steps corresponding directly to the function of device elements in claim 2. Therefore claim 12 is rejected as set forth above for claim 2.

Referring to claim 13:

Claim 13 is the method claim corresponding to operation of the device in claim 3 with method steps corresponding directly to the function of device elements in claim 3. Therefore claim 13 is rejected as set forth above for claim 3.

Referring to claim 14:

Claim 14 is the method claim corresponding to operation of the device in claim 6 with method steps corresponding directly to the function of device elements in claim 6. Therefore claim 14 is rejected as set forth above for claim 6.

Referring to claim 15:

Claim 15 is the method claim corresponding to operation of the device in claim 2 with method steps corresponding directly to the function of device elements in claim 2. Therefore claim 15 is rejected as set forth above for claim 2.

Referring to claim 16:

Claim 16 is the method claim corresponding to operation of the device in claim 3 with method steps corresponding directly to the function of device elements in claim 3. Therefore claim 16 is rejected as set forth above for claim 3.

With regard to claim 18, Ohuchi discloses substantially the claimed invention as set forth in the discussion above for claim 1.

Ohuchi does not disclose expressly a plurality of counters to count number of isolated points contained in a corresponding one of the small blocks.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have a counter to count isolated points for each small block. Applicant has not disclosed that plurality of counters to count each small block provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a counter to count plurality of small blocks because both perform the same function of counting isolated points.

Therefore, it would have been obvious to combine to one of ordinary skill in this art to modify Ohuchi with to obtain the invention as specified in claim 18.

With regard to claim 19, Ohuchi discloses wherein halftone-dot region determination unit comprises: a first determination unit for determining whether the calculated number of isolated points in a large block equals or exceeds a threshold value (column 6, lines 11-19); a second determination unit for determining whether a predetermined number of plurality of isolated point counters of small block isolated point calculation unit have each counted at least one isolated point in the corresponding small block contained in the large block (column 18, lines 15-21); and a third determination unit for determining whether the large block is a halftone-dot region based

on the determination results of first determination unit and second determination unit (column 19, lines 8-21).

With regard to claim 20, Ohuchi discloses wherein third determination unit is operable to determine that the large block is a halftone-dot region if first determination unit determines that the calculated number of isolated points in the large blocks equals or exceeds the threshold value (column 19, lines 54-61), and second determination unit determines that the predetermined number of isolated point counters have each counted at least one isolated point in the corresponding small block contained in the large block (column 20, lines 39-52).

Claims 4, 5, 9, 10, 17, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohuchi (US 5,025,481) as applied to claim 1 above, and further in view of Kingetsu et al. (Kingetsu) (US 6,268,935).

With regard to claim 4, Ohuchi differs from claim 4, in that he does not explicitly teach an image processing unit for correcting the image data based on the results of determination by halftone-dot region determination unit.

Kingetsu discloses an image processing unit for correcting the image data based on the results of determination by halftone-dot region determination unit (e.g., blocks 18-25, 27-36, figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Ohuchi to include an image processing unit for correcting the image data based on the results of determination by halftone-dot region determination unit as taught by Kingetsu. It would have been obvious to one of ordinary

skill in the art at the time of the invention to have modified Ohuchi by the teaching of Kingetsu to correct digital image.

With regard to claim 5, Kingetsu discloses further comprising: an image forming unit which performs image formation based on the image data corrected by image processing unit (e.g., bit map formation section 26, figure 1).

With regard to claim 9, the subject matter is similar to claim 4. Therefore the rejection on claim 9 is set forth as above claim 4.

With regard to claim 10, the subject matter is similar to claim 5. Therefore the rejection on claim 10 is set forth as above claim 5.

With regard to claim 17, Kingetsu discloses further comprising a character determination unit (e.g., dot detection section, column 3, lines 23-26) for determining whether at least one character region exists in the image data, wherein: image processing (e.g., blocks 18-25, 27-36, figure 1) unit is operable to correct the image data based on the results of determination by halftone-dot region determination unit and character determination unit (e.g., dot detection section, discrimination section, figure 1); and image forming unit is operable to perform image formation based on the image data corrected by image processing unit (e.g., bit map formation section 26, figure 1).

With regard to claim 23, Kingetsu discloses further comprising a character determination unit for determining whether at least one character region exists in the image data (column 3, lines 22-26), wherein: image processing unit is operable to correct the image data based on the results of determination by halftone-dot region

determination unit and character determination unit (column 4, lines 20-37); and image forming unit is operable to perform image formation based on the image data corrected by image processing unit (e.g., block 26, figure 1, column 12, lines 30-36).

With regard to claim 24, Kingetsu discloses an image processing method as claimed in claim 11, further comprising the steps of: correcting the image data based on the results of determination of determining step (column 4, lines 20-37); and forming images based on the corrected image data (e.g., block 26, figure 1, column 12, lines 30-36).

With regard to claim 25, Kingetsu discloses an image processing method as claimed in claim 14, further comprising the steps of: correcting the image data based on the results of determination of determining step (column 4, lines 20-37); and forming images based on the corrected image data (e.g., block 26, figure 1, column 12, lines 30-36).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang N. Vo whose telephone number is 5712701121. The examiner can normally be reached on 7:30AM-5:00PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 5712727440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quang N. Vo/

Examiner, Art Unit 2625

/King Y. Poon/

Supervisory Patent Examiner, Art Unit 2625